



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/511,121	03/28/2005	Nicholas D Spencer	ETH 110	8769
23579 7590 12/22/2006 PATREA L. PABST PABST PATENT GROUP LLP 400 COLONY SQUARE, SUITE 1200 1201 PEACHTREE STREET ATLANTA, GA 30361			EXAMINER MULLIS, JEFFREY C	
			ART UNIT 1711	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		12/22/2006	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/511,121	Applicant(s) SPENCER ET AL.	
	Examiner Jeffrey C. Mullis	Art Unit 1711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 4,7,11,13 and 14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5,6,8-10,12 and 15-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>2-4-05</u> . | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 1711

Applicant's election of nonpeptide polyamine backbone, PEG side chain and oxidized silicon surfaces in the reply filed on 11-29-06 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claims 1-3, 5, 6, 8-10, 12 and 15-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "non-interactive" is defined by applicants specification as meaning that no polymer interaction occurs with the metal surface. However it is unclear what is intended when a metal surface is not required to be present in the first place.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 1711

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 5, 6, 8-9, 12, 15-20 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Hubbell et al. (US 2003/0087111).

Patentees disclose a graft copolymer having a polylysine backbone and PEG side chains (a moiety having a hydroxyl functional group at the end) is deposited on a silicon dioxide surface as an aqueous solution. Note Example 4 and paragraph 129 and claim 29 disclosing polylysine as being polycationic. With re to applicants lubricating characteristic, even water (as is present in Hubbells' graft copolymer composition) is known to act as a lubricant (see for instance the last complete paragraph of the first column on page 143 of applicants Hollinger reference and the paragraph bridging columns 243 and 244 of Xiong) and Hubbells aqueous graft copolymer composition therefore reasonably appear to have lubricating properties even aside from the fact that applicants and Hubbells materials are graft copolymers with amine backbones and PEG side chains.

When the reference discloses all the limitations of a claim except a property or function, and the Examiner cannot determine whether or not the reference inherently possesses properties which anticipate or render obvious the claimed invention, basis exists for shifting the burden of proof to applicant. Note In re Fitzgerald et al. 619 F. 2d 67, 70, 205 USPQ 594, 596, (CCPA 1980). See MPEP § 2112-2112.02.

Art Unit: 1711

Claims 9 and 10 rejected under 35 U.S.C. 103(a) as being unpatentable over Hubbell et al., cited above in view of Singh et al. (US 20010049105).

Hubbell do not disclose that biotin may be attached to the ends of their polymer but does disclose that bioactive species such as receptor ligands may be (paragraphs 55 and 56).

Singh et al. disclose that biotin may be used as a receptor ligand in paragraphs 38 and 161.

It would have been obvious to a practitioner having an ordinary skill in the art at the time of the invention to attach biotin to the ends of the graft copolymer of the primary reference as taught by the secondary reference motivated to achieve the goal of the primary reference of a graft polymer with a receptor ligand at the ends thereof and by the disclosure of the secondary reference that biotin would fulfill the requirements as a receptor ligand as desired by the primary reference absent any showing of surprising or unexpected results.

Claims 1-3, 5, 6, 8-9, 12, 15-20 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Li et al. (US 2002/0143081).

Li discloses numerous examples of graft copolymers having polyamine backbones such as PEI and which are applied as aqueous emulsions to glass. Note paragraphs 128 and 129 in this re. Note that the emulsion particles are charged in paragraph 108.

When the reference discloses all the limitations of a claim except a property or function, and the Examiner cannot determine whether or not the

Art Unit: 1711

reference inherently possesses properties which anticipate or render obvious the claimed invention, basis exists for shifting the burden of proof to applicant. Note In re Fitzgerald et al. 619 F. 2d 67, 70, 205 USPQ 594, 596, (CCPA 1980). See MPEP § 2112-2112.02.

Claims 1-3, 5, 6, 8, 9, 12, 15-20 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Textor et al. (WO 00/65352), cited by applicants.

Patentees disclose "polyionic" "brush copolymers" for adsorption to surfaces (Abstract). Note the first paragraph on page 9 where it is disclosed that the backbones have a charge opposite of the substrates they are in contact with and that the side chains are non interactive. Note that the first paragraph on page 12 for use of polyethyleneimine backbones. Note page 16, lines 5-14 where it is disclosed that ligands are introduced at the ends of the PEG side chains. Note page 36, lines 1-16 for use of negatively charged metal substrates.

When the reference discloses all the limitations of a claim except a property or function, and the Examiner cannot determine whether or not the reference inherently possesses properties which anticipate or render obvious the claimed invention, basis exists for shifting the burden of proof to applicant. Note In re Fitzgerald et al. 619 F. 2d 67, 70, 205 USPQ 594, 596, (CCPA 1980). See MPEP § 2112-2112.02.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Textor, cited above, in view of Singh et al. (US 20010049105).

Art Unit: 1711

Patentees do not disclose biotin end groups.

It would have been obvious to a practitioner having an ordinary skill in the art at the time of the invention to attach biotin to the ends of the graft copolymer of the primary reference as taught by the secondary reference motivated to achieve the goal of the primary reference of a graft polymer with a receptor ligand at the ends thereof and by the disclosure of the secondary reference that biotin would fulfill the requirements as a receptor ligand as desired by the primary reference absent any showing of surprising or unexpected results.

Any inquiry concerning this communication should be directed to Jeffrey C. Mullis, M-F, 9-5 pm at telephone number 571 272 1075.

Jeffrey C. Mullis
J Mullis
Art Unit 1711

JCM

12-12-06

Jeffrey Mullis
Primary Examiner
Art Unit 1711

A handwritten signature in black ink, appearing to be 'JCM' or similar, written over the printed name of Jeffrey Mullis.